

**DBMSOL AND FBMSOL POWER SPECTRAL DENSITY MASKS****ABSTRACT:**

In accordance with one embodiment of the present invention, a power spectral density (PSD) mask for spectral shaping of a dual bit map (DBM) mode downstream transmission is provided. The PSD mask is represented by the equation:

$$PSD_{DBMSOL} = K_{ADSL\_OL} \times \frac{C}{f_0} \times \frac{\left[ \sin\left(\pi \frac{f}{f_0}\right) \right]^2}{\left( \pi \frac{f}{f_0} \right)^2} \times \frac{1}{1 + \left( \frac{f}{f_{LP3dB}} \right)^{12}} \times \frac{1}{1 + \left( \frac{f_{HP3dB}}{f} \right)^6}, \quad 0 < f < \infty$$

where  $PSD_{DBMSOL}$  represents the PSD mask,  $K_{ADSL\_OL}$  represents a constant value,  $C$  represents a constant value,  $f$  represents a frequency of the downstream transmission,  $f_0$  represents a constant value,  $f_{LP3dB}$  represents a 3 decibel (dB) low pass frequency and  $f_{HP3dB}$  represents a 3 dB high pass frequency.  $K_{ADSL\_OL}$  preferably has a value between 0.0900 watts and 0.1200 watts and more preferably has a value of 0.1104 watts. The constant  $f_0$  preferably has a value between 2.100 megahertz and 2.300 megahertz and more preferably has a value of 2.208 megahertz. The constant  $f_{LP3dB}$  has a value substantially equal to  $\frac{f_0}{2}$ . The constant  $f_{HP3dB}$  has preferably has a value between 100 kilohertz and 150 kilohertz and more preferably has a value of 130 kilohertz. The constant  $C$  preferably has a value between 0.1 and 10 and more preferably has a value of 2.